

Simulate Compound Events #1

A **simulation** is an experiment that represents a real-world situation. You can run a simulation with multiple trials to find experimental probabilities.

Directions

Read the text below. Then answer the questions to design and run a simulation and find the experimental probability of the compound event. You will need a coin to run the simulation.

Currently, each box of Fruity Crunchies cereal contains a tube of either red slime or blue slime. The probability of getting red slime is equal to the probability of getting blue slime. Emir wants to know how likely it is that he will get at least one tube of red slime if he buys two boxes of the cereal.

1. What is the probability that Emir will get a tube of red slime if he buys one box of Fruity Crunchies cereal? Write your answer as a fraction in simplest form and as a percent.

$\frac{1}{2}$ or 50%

2. Design a simulation that uses a coin to determine the probability of Emir getting at least one tube of red slime if he purchases two boxes of cereal.

a. Explain how you could use a coin to simulate getting red slime or blue slime.

Sample answer: I could let the coin landing on heads represent getting red slime and the coin landing on tails represent getting blue slime.

b. Explain how you would run each trial in your simulation.

Sample answer: For each trial, I would flip the coin two times to represent the two tubes of slime that Emir gets when he buys two boxes of cereal.

3. Run the simulation you designed above using a coin. Run 20 trials.

a. Record the results of each of your trials in the table below. **Data will vary.**

Trial 1:	Trial 2:	Trial 3:	Trial 4:	Trial 5:
Trial 6:	Trial 7:	Trial 8:	Trial 9:	Trial 10:
Trial 11:	Trial 12:	Trial 13:	Trial 14:	Trial 15:
Trial 16:	Trial 17:	Trial 18:	Trial 19:	Trial 20:

- b. Based on your simulation, what is the probability that Emir will get at least one tube of red slime if he purchases two boxes of cereal? Write your answer as a fraction in simplest form and as a percent.

Answers will vary.

Challenge! In a simulation, it is important to run multiple trials. Why do you think that is?